

JAN 22 1996

List of Action Categories and Actions

Comments on Action Categories and Actions

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	Importance 1 - 5	Core Action C
Action Categories to Restore Bay-Delta System Habitats		
Restoration of Bay-Delta System Shallow Water (Tidal) Habitat	<u>5</u>	<u>C</u>
Actions:		
-Convert existing leveed lands to tidal action	<u>5</u>	<u>C</u>
-Protect existing shallow habitat from erosion	<u>5</u>	<u> </u>
-Restore tidal action to existing diked wetlands	<u>5</u>	<u>C</u>
-Reconstruct levees to include shallow water habitat	<u>?</u>	<u> </u>
-Fill deep water to produce shallow habitat	<u>?</u>	<u> </u>
Restoration of Bay-Delta System Riverine Habitat	<u>5</u>	<u>C</u>
Actions:		
-Reconstruct river banks and shallow areas	<u>5</u>	<u>C</u>
-Restore and preserve channel islands	<u> </u>	<u> </u>
-Restore natural channel configurations	<u>5</u>	<u>C</u>
-Modify channel/levee construction practices to include riverine elements	<u>5</u>	<u> </u>
Restoration of Bay-Delta System Riparian Habitat	<u>5</u>	<u>C</u>
Actions:		
-Improve and protect degraded riparian habitats	<u>5</u>	<u>C</u>
-Establish new areas of riparian habitat	<u>?</u>	<u> </u>
-Reestablish historic riparian areas	<u>5</u>	<u>C</u>
-Modify levee maintenance practices	<u>?</u>	<u> </u>
-Protect existing riparian habitat	<u>5</u>	<u>C</u>

Restore Bay-Delta low salinity habitat 5

	Importance 1 - 5	Core Action C
Restoration of Bay-Delta System Wetland Habitat	<u>5</u>	<u>C</u>
Actions: -Restore, enhance, and create wetlands	<u>5</u>	<u>C</u>
-Expand wetland acquisition programs	<u>5</u>	<u>C</u>
-Convert agricultural lands to wetlands	<u>?</u>	<u> </u>
-Protect existing wetland habitat	<u>5</u>	<u>C</u>
Restoration of Bay-Delta System Terrestrial Habitat	<u>5</u>	<u>C</u>
Actions: -Protect existing upland habitat	<u>5</u>	<u>C</u>
-Establish upland habitat on levees	<u> </u>	<u> </u>
-Establish upland habitat on fallowed croplands	<u> </u>	<u> </u>
-Establish oak woodlands on suitable soils	<u>5</u>	<u> </u>
-Encourage wildlife-friendly agricultural practices	<u>5</u>	<u> </u>
-Preserve agricultural land uses providing habitat	<u> </u>	<u> </u>
-Clean up sites contaminated with toxic substances	<u>5</u>	<u> </u>
Implementation of Integrated Habitat Management Programs	<u>5</u>	<u>C</u>
Actions: -Establish regional ecosystem restoration guidelines	<u>5</u>	<u>C</u>
-Implement integrated regional habitat management	<u>5</u>	<u> </u>
-Develop cooperative management agreements	<u>5</u>	<u> </u>
-Establish mitigation banking program	<u>1</u>	<u> </u>
Establishment of Floodways and Meander Belts	<u>5</u>	<u>C</u>
Actions: -Relocate levees to widen floodways	<u>5</u>	<u>C</u>
-Allow river channels to meander	<u>5</u>	<u> </u>
-Acquire Delta islands as overflow areas	<u>?</u>	<u> </u>
-Restore floodways as habitat corridors	<u>5</u>	<u> </u>
Control of Introduced Species	<u>4</u>	<u> </u>
Actions: -Remove or reduce nuisance species in key habitats	<u>4</u>	<u> </u>
-Improve regulation of ballast-water releases	<u>5</u>	<u> </u>
-Improve border inspection practices	<u> </u>	<u> </u>
-Inspect for invasions of nuisance species	<u>5</u>	<u> </u>
-Modify habitat to favor native species	<u>4</u>	<u> </u>

	Importance 1 - 5	Core Action C
Delta Waterfowl Habitat Management	<u>4</u>	<u> </u>
Actions: -Manage agricultural crops for waterfowl forage production	<u>3</u>	<u> </u>
-Improve management of public waterfowl areas	<u>5</u>	<u>C</u>
-Implement terrestrial predator control programs	<u>1</u>	<u> </u>
-Increase sources and availability of wildlife forage	<u>3</u>	<u> </u>

Action Categories to Restore Upstream Habitat

Restoration of Upstream Anadromous Fish Habitat (<i>Site specific</i>)	<u>5</u>	<u>C</u>
Actions: -Manage flows and temperatures in upstream habitats	<u>5</u>	<u>C</u>
-Restore and replenish spawning gravels	<u>5</u>	<u> </u>
-Restore channel configurations	<u>5</u>	<u> </u>
-Restore shoreline habitat conditions	<u>5</u>	<u> </u>
-Modify gravel mining practices	<u> </u>	<u> </u>
-Improve floodway drainage to reduce fish stranding	<u> </u>	<u> </u>
Improvements for Upstream Fish Passage	<u> </u>	<u> </u>
Actions: -Modify passage at upstream dams and other barriers	<u>5</u>	<u>C</u>
-Modify natural barriers to improve passage	<u>1</u>	<u> </u>
Restoration of Upstream Riparian Habitat	<u>5</u>	<u>C</u>
Actions: -Restrict livestock grazing in riparian corridors	<u>5</u>	<u>C</u>
-Revegetate degraded riparian habitats	<u>5</u>	<u>C</u>
-Protect riparian lands through purchase/easements	<u>5</u>	<u>C</u>
-Restore flows to dewatered riparian habitats	<u>5</u>	<u>C</u>
Restoration of Upstream Wetland Habitat	<u>5</u>	<u>C</u>
Actions: -Modify floodways to support wetland habitats	<u>5</u>	<u>C</u>
-Reuse agricultural drainage to create wetlands	<u>?</u>	<u> </u>
-Reuse urban wastewater effluent to create wetlands	<u>?</u>	<u> </u>
-Manage groundwater recharge for wetland habitat	<u>?</u>	<u> </u>

	Importance 1 - 5	Core Action C
Action Categories to Reduce Effects of Diversions		
Delta Inflow/Outflow/Export Management	<u>5</u>	<u>C</u>
Actions regarding Delta Inflows:		
-Modify upstream consumptive use	<u>5</u>	<u>C</u>
-Modify upstream reservoir operations criteria	<u>5</u>	_____
-Modify Delta inflow timing pattern	<u>5</u>	_____
-Provide instream pulse flows for fish passage	<u>5</u>	_____
-Provide instream flows for fish attraction	<u>5</u>	_____
Actions regarding Delta Diversions and Outflows:		
-Modify volumes and timing of exports	<u>5</u>	_____
-Modify in-Delta consumptive use	<u>5</u>	_____
-Modify central Delta channel operations	<u>5</u>	_____
-Modify export operations criteria	<u>5</u>	_____
-Establish a Delta watermaster to manage flows	_____	_____
-Use real-time monitoring and adaptive management	<u>4</u>	_____
Modification of Diversion Timing Patterns	<u>5</u>	_____
Actions:		
-Modify diversion timing of in-Delta diversions	<u>5</u>	_____
-Modify diversion timing of export diversions	<u>5</u>	_____
-Coordinate SWP/CVP diversion timing	<u>5</u>	_____
-Modify diversion timing through Montezuma Salinity Control Gate	<u>5</u>	_____
-Use real-time monitoring and adaptive management	<u>4</u>	_____
Increased Rates of Diversion Capacity	<u>1</u>	_____
Actions:		
-Obtain approvals for expanded export capacities	<u>1</u>	_____
-Enlarge export pumping capacities	<u>1</u>	_____
-Increase diversion capability at Red Bluff Diversion Dam	<u>1</u>	_____
Acquisition of Long-Term Water Supplies for Fish and Wildlife	<u>5</u>	<u>C</u>
Actions:		
-Acquire water to augment instream flows	<u>5</u>	_____
-Obtain shifts in timing of instream flows	<u>5</u>	_____
-Obtain shifts in diversion timing patterns	<u>5</u>	_____

	Importance 1 - 5	Core Action C
-Acquire water for refuge habitat use	<u>5</u>	___
-Modify water law to establish instream rights	<u>5</u>	___
Installation and Improvement of Fish Screens	<u>5</u>	<u>C</u>
Actions: -Improve screens at Delta export pumps	<u>5</u>	___
-Improve other existing fish screen systems	<u>5</u>	___
-Install screens on other in-Delta diversions	<u>5</u>	___
-Install screens on upstream diversions	<u>5</u>	___
-Consolidate and screen existing small diversions	<u>3</u>	___
-Enforce screening requirements	<u>5</u>	___
Improvement of Bay-Delta System Fish Migration	<u>5</u>	<u>C</u>
Actions: -Install barriers to block fish movement into Old River	___	___
-Install barriers to keep fish in Sacramento River	___	___
-Install barriers to divert fish from Sacramento River to western distributaries	___	___
-Operate fish barrier on San Joaquin River at Merced River confluence in fall	___	___
-Provide instream pulse flows for fish passage	<u>5</u>	___
-Provide instream flows for fish attraction	<u>5</u>	___
Improvement of Fish Salvage Operations	<u>7</u>	___
Actions: -Improve design of salvage facilities	<u>7</u>	___
-Improve operation of salvage facilities	<u>7</u>	___
-Improve fish hauling and release procedures	<u>7</u>	___
Removal and Control of Aquatic Predators	___	___
Actions: -Harvest predators at Delta export pumps	<u>3</u>	___
-Harvest predators in upstream habitats	<u>3</u>	___
Action Categories to Manage the Enhancement of Anadromous Fish Populations		
<i>Water System Project Operations</i>	<u>5</u>	___
Fish Hatchery Operations	<u>1</u>	___
Actions: -Expand hatchery capacities	<u>1</u>	___
-Construct new hatcheries on the San Joaquin River	<u>1</u>	___
-Improve hatchery operations	<u>4</u>	<u>C</u>

	Importance 1 - 5	Core Action C
-Reduce hatchery effects on wild fish populations	<u>5</u>	<u>C</u>
-Implement tagging of hatchery-bred fish	<u>5</u>	<u> </u>
-Establish new captive breeding programs <i>Only for ESA</i>	<u>3</u>	<u> </u>
Fish Harvest Management <i>(Priority is doubling wild populations of anadromous fish)</i>	<u>3</u>	<u> </u>
Actions: -Improve regulation of commercial take	<u>3</u>	<u> </u>
-Improve regulation of recreational take	<u>3</u>	<u> </u>
-Improve enforcement of harvest regulations	<u>3</u>	<u> </u>

Action Categories for Reducing Reliance on Delta Exports

Desalination	<u>3</u>	<u> </u>
Actions: -Expand desalination of Southern California supplies	<u> </u>	<u> </u>
-Expand desalination of San Joaquin Valley supplies	<u> </u>	<u> </u>
-Improve desalination technologies and cost	<u> </u>	<u> </u>
-Educate users about desalination feasibility	<u> </u>	<u> </u>
Water Conservation	<u>5</u>	<u>C</u>
Actions: -Increase use of district-wide conservation practices	<u>5</u>	<u>C</u>
-Increase use of on-farm conservation practices	<u>5</u>	<u>C</u>
-Increase use of municipal conservation practices	<u>5</u>	<u>C</u>
-Increase use of industrial conservation practices	<u>5</u>	<u>C</u>
-Implement financial incentive policies	<u>5</u>	<u>C</u>
-Implement conservation-oriented rate structures	<u>5</u>	<u>C</u>
-Educate users about conservation technologies	<u>5</u>	<u>C</u>
Water Reclamation	<u>5</u>	<u>C</u>
Actions: -Recharge groundwater with reclaimed water	<u>5</u>	<u> </u>
-Use reclaimed water for agricultural irrigation	<u>5</u>	<u> </u>
-Reclaim saline agricultural drainage water	<u>5</u>	<u> </u>
-Recycle and treat water for potable reuse	<u>5</u>	<u>C</u>
-Use reclaimed water for nonpotable urban uses	<u>5</u>	<u>C</u>
-Use reclaimed water for landscape irrigation	<u>5</u>	<u>C</u>
-Use reclaimed water for power plant cooling	<u>5</u>	<u>C</u>
-Use reclaimed water for industrial processes	<u>5</u>	<u>C</u>
-Use reclaimed water to repel salinity intrusion <i>site specific</i>	<u>4</u>	<u> </u>
-Improve reclamation technologies and cost	<u>5</u>	<u>C</u>
-Educate public about water reclamation	<u>5</u>	<u>C</u>

	Importance 1 - 5	Core Action C
Land Retirement and Fallowing	<u>5</u>	<u>C</u>
Actions:		
-Encourage land fallowing during drought periods	<u>5</u>	_____
-Develop incentive programs for land retirement	<u>5</u>	_____
-Purchase lands or easements	<u>5</u>	_____
-Retire lands with drainage problems	<u>5</u>	_____
Water Pricing	<u>5</u>	<u>C</u>
Actions:		
-Establish incentives for pricing to reduce demand	<u>5</u>	_____
-Educate users about pricing feasibility	<u>5</u>	_____
-Remove legal obstacles to pricing incentive programs	<u>5</u>	_____

Action Categories to Enhance Water Supplies

Watershed Management	<u>4</u>	_____
Actions:		
-Manage vegetation cover to increase yield	_____	_____
-Manage riparian zones to protect water quality	<u>5</u>	<u>C</u>
-Manage land uses to reduce sedimentation	<u>5</u>	_____
-Modify weather to increase precipitation	<u>1</u>	_____
New or Expanded Onstream Storage	<u>1</u>	_____
Actions:		
-Construct new storage facilities south of the Delta	<u>1</u>	_____
-Construct new storage facilities north of the Delta	<u>1</u>	_____
-Enlarge existing onstream storage reservoirs	<u>1</u>	_____
-Modify operations of existing onstream reservoirs	<u>5</u>	_____
New or Expanded Offstream Storage	<u>1</u>	_____
Actions:		
-Construct new storage facilities south of the Delta	<u>1</u>	_____
-Construct new storage facilities north of the Delta	<u>1</u>	_____
-Construct new storage facilities in Delta <i>dependent on overall plan</i>	<u>3</u>	_____
-Enlarge existing offstream storage reservoirs	<u>1</u>	_____
-Modify operations of existing offstream reservoirs	<u>5</u>	_____
Groundwater Banking and Conjunctive Use	<u>5</u>	_____
Actions:		
-Establish incentives for conjunctive use	_____	_____
-Modify Water Code to encourage conjunctive use	_____	_____
-Establish conjunctive use programs	_____	_____

	Importance 1 - 5	Core Action C
-Store groundwater south of the Delta	_____	_____
-Store groundwater north of the Delta	_____	_____
-Implement techniques to increase groundwater recharge	_____	_____
Improvement of Through-Delta Conveyance	<u>1</u>	_____
Actions:		
-Increase capacities of existing east-side channels	_____	_____
-Increase flows from the Sacramento River to the central Delta	_____	_____
-Modify Delta levees to increase flow cross sections	_____	_____
-Construct pump/siphon systems between Delta channels	_____	_____
-Expand existing intakes at the Delta export facilities	_____	_____
-Construct expanded export intake/forebay pumping system	_____	_____
Construction and Improvement of Conveyance Facilities	<u>1</u>	_____
Actions:		
-Construct east-side isolated transfer system	_____	_____
-Construct west-side isolated transfer system	_____	_____
-Construct small isolated transfer facility	_____	_____
-Convert Delta islands to storage/conveyance system	_____	_____
-Construct conveyance to offstream storage	_____	_____
-Construct conveyance to groundwater storage	_____	_____
Changes in Locations of Diversions	<u>1</u>	_____
Actions:		
-Relocate Delta export pumps from key habitats	_____	_____
-Relocate other in-Delta diversions for more reliable supplies	_____	_____
-Consolidate in-Delta agricultural diversions	_____	_____
-Relocate upstream diversions from key habitats	_____	_____
-Improve diversion designs when relocating	_____	_____
Action Categories to Increase Supply Predictability		
Water Transfers	<i>With certain conditions</i> <u>4</u>	_____
Actions:		
-Modify Water Code to ease transfers	_____	_____
-Improve procedures for transfer permitting	_____	_____
-Coordinate diversion and conveyance of transfers	_____	_____

	Importance 1 - 5	Core Action C
Long-Term Planning for Drought Contingencies	<u>5</u>	___
Actions:		
-Increase water storage capacities at user locations	___	___
-Establish incentives for long-term planning	<u>5</u>	___
-Conduct Integrated Resources Planning	<u>5</u>	___
-Establish incentives for long-term conservation	<u>5</u>	___
-Develop alternate supplies for drought situations	___	___
Water Resources Data and Information Management	<u>5</u>	___
Actions:		
-Establish a comprehensive water data system	___	___
-Implement real-time data management system	___	___
-Integrate data for adaptive management decisions	___	___
-Establish accessible data management system	___	___
Establishment of Institution for Integrated Long-Term Water Management	<u>5</u>	___
Actions:		
-Establish long-term guarantees for management	___	___
-Establish institution to implement guarantees	___	___
-Coordinate multiagency roles in management	___	___
-Coordinate groundwater and surface water management	<u>5</u>	___
-Establish incentives for cooperation/coordination	___	___
-Establish a public awareness and education program	___	___
Establishment of Export Capacity Market	___	___
Actions:		
-Establish procedures for allocation of export capacity	___	___
-Establish institution to allocate export capacity	___	___
-Coordinate water transfers and export capacity	___	___
-Market export capacity for environmental benefits	___	___
Integration of Land Use and Water Supply Planning	<u>5</u>	___
Actions:		
-Coordinate land uses with water supplies	___	___
-Encourage local determination of supplies available	___	___
-Encourage local assessment of water supply reliability	___	___

		Importance 1 - 5	Core Action C
Action Categories for Managing Water Quality			
Installation and Operation of Flow Barriers		<u>7</u>	<u> </u>
Actions:	-Install flow barriers to manage south Delta quality	<u>7</u>	<u> </u>
	-Install weirs to control salinity intrusion	<u>1</u>	<u> </u>
Management of Agricultural Drainage		<u> </u>	<u> </u>
Actions:	-Implement source control regulations for pollutants	<u>5</u>	<u>C</u>
	-Implement pollutant-load limits in San Joaquin River	<u>5</u>	<u>C</u>
	-Reduce or control volume of agricultural discharges	<u>5</u>	<u>C</u>
	-Modify cropping and irrigation practices	<u>5</u>	<u>C</u>
	-Export agricultural drainage to other watersheds	<u>1</u>	<u> </u>
	-Retire lands with drainage disposal problems	<u>4</u>	<u> </u>
	-Improve pest-control practices	<u>4</u>	<u> </u>
	-Avoid use of high-salinity irrigation water	<u>4</u>	<u> </u>
	-Manage irrigation tailwater to reduce pesticides	<u>4</u>	<u> </u>
	-Manage drainage timing to reduce instream impacts	<u>1</u>	<u> </u>
	-Treat drainage to remove salt or other pollutants	<u>4</u>	<u> </u>
	-Dilute pollutants in Delta inflows from SJR using stored water	<u>1</u>	<u> </u>
	<i>Use economic incentives to reduce drainage</i>	<u>5</u>	<u> </u>
Management of Urban/Industrial Drainage and Wastewater Discharge		<u> </u>	<u> </u>
Actions:	-Retain and manage stormwater runoff	<u>5</u>	<u> </u>
	-Implement urban awareness/education programs	<u>5</u>	<u> </u>
	-Treat discharges to remove problem constituents	<u>5</u>	<u> </u>
	-Construct wetlands to treat wastewater effluent	<u> </u>	<u> </u>
	-Increase key nutrient inputs to estuary	<u> </u>	<u> </u>
	-Enforce wastewater discharge requirements	<u>5</u>	<u> </u>
	-Prevent toxic discharges from industrial plants	<u>5</u>	<u>C</u>
Dredged Material Management		<u> </u>	<u> </u>
Actions:	-Limit dredging to slack tides	<u> </u>	<u> </u>
	-Limit dredging to avoid fish migration periods	<u> </u>	<u> </u>
	-Use techniques to localize sediment movement	<u> </u>	<u> </u>
	-Dispose dredged materials at nonaquatic or other suitable sites	<u> </u>	<u> </u>
	-Remove contaminated sediments in critical habitat sites	<u> </u>	<u> </u>
	-Ensure material used for levee maintenance is noncontaminated	<u>5</u>	<u>C</u>

	Importance 1 - 5	Core Action C
Management of Abandoned-Mine Drainage	<u>5</u>	<u>C</u>
Actions: -Manage discharges from abandoned mines	<u>5</u>	___
-Remediate abandoned mining sites discharging pollutants	<u>5</u>	___
Action Categories for Improving System Reliability		
Levee Maintenance and Stabilization	<u>3</u>	___
Actions: -Maintain and stabilize existing levees	___	___
-Modify agricultural practices to reduce subsidence	___	___
-Use infilling to correct past subsidence	___	___
-Implement uniform maintenance standards	___	___
-Provide funding for maintenance and stabilization	___	___
Improvement of Flood Protection Levels and Seismic Stabilities	___	___
Actions: -Reconstruct levees to higher design standards	___	___
-Reconstruct levees to higher seismic standards	___	___
-Relocate levees to more stable sites	___	___
-Widen floodways to increase flood conveyance	<u>5</u>	<u>C</u>
-Establish and manage flood overflow areas	<u>5</u>	<u>C</u>
Rerouting and Protection of Infrastructure from Flooding and Seismic Risk	___	___
Actions: -Maintain/reconstruct levees around infrastructure	___	___
-Reconstruct infrastructure to increase reliability	___	___
-Relocate/reroute infrastructure	___	___
Establishment of Long-Term Funding Mechanisms	___	___
Actions: -Establish a disaster contingency funding program	___	___
-Establish a Bay-Delta financing authority	___	___
-Provide low-cost debt financing for local agencies	___	___
-Establish a bond financing mechanism	___	___
-Establish a statewide water utility surcharge	___	___

COMMENTS: I am a signatory to the joint letter sent to CALFED expressing the view of many BDAC members who are most concerned with environmental restoration.

I reiterate the view that many of these actions need the further analysis of the CALFED Team and of technical experts within the environmental community.